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SQUAMISH ESTUARY MANAGEMENT PLAN

Recreation Work Group Final Report

Revised February 1982

Government of Canada Gouvernement du Canada

Province of British Columbia

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BACKGROUND PUBLICATIONS
SQUAMISH ESTUARY MANAGEMENT PLAN

Air and Water Quality Work Group
Final Report

Habitat Work Group
Final Report

Land Use Work Group
Final Report

Recreation Work Group
Final Report

Squamish Estuary Draft Management Plan

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PREFACE

The terms of reference of the Squamish River Estuary Management Study called for the preparation of a final report from each Work Group in addition to the actual Management Plan.

This is the Final Report of the Recreation Work Group and represents the consolidation of data presented in the Preliminary Report with additional information gathered since March, 1980. Discussion of specific issues and Work Group recommendations are also included.

Subsequent to the publication of the Final Report in February, 1981, it was brought to the attention of the Work Group that some important information was not included in the Final Report. Hence, the publication of this revised edition.

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1. INTRODUCTION

The Squamish River Estuary Management Study was initiated in May, 1979, to develop a plan for the use of the estuary that will optimize resource/habitat values while providing the long-term trade, development and energy requirements of the community and province. Figure 1 shows the boundaries of the study which, in general, extend from the Mamquam River to the 5-fathom contour at the estuary delta front.

The study included five technical committees: The Planning Work Group, Land Use Work Group, Habitat Work Group, Air and Water Quality Work Group and Recreation Work Group - which have collated and analyzed existing information on the estuary. The terms of reference of the Recreation Work Group are found in APPENDIX I of this report.

Data for this report has been gathered from a variety of sources, including existing literature and companion Work Groups. The Public Involvement Work Group has been most helpful in the distillation of information, suggestions and ideas put forward during the study.

This report has endeavored to present the issues and make recommendations in as concise a format as possible. However, the lack of extensive detail should not impede general agreement on the recommendations contained in this report.

2. SUMMARY

2.1 Existing Recreational Uses

Although only a fraction of the estuary is actually used by recreationists, large areas are critical in the food chain and habitat of fish and bird life that are themselves the objects of various recreational pursuits. The salmon sports fishery in the Howe Sound Region, for example, is a multi-million dollar enterprise dependent upon the estuary, while bald eagle concentrations, also dependent on the salmon, are of international significance.

Nature observation, hunting, angling, shallow-draft boating and walking are popular activities in and around the estuary. Camping also takes place in conjunction with fishing in the Squamish River. Recreational boating facilities are confined to those made available by the Squamish Yacht Club, which currently operates at capacity.

2.2 Potential Recreational Activities

Improved access and information for the public would increase the volume and diversity of uses, attracting picnickers, sightseers, nature enthusiasts, small boaters and a variety of organized groups from both the District and the Region.

2.3 Tourism

The town of Squamish is not and will not likely become a major focus for tourism or regional recreation. The river and estuary are attractive and well used by groups and individuals having a particular interest in fishing and interpretation. Additional use could be made of the area by more locals and non-residents if certain improvements were made.

2.4 Recommendations

There are several projects which should be undertaken to improve public information and accessibility and to give the estuary a higher profile:

2.4.1 Riverside Camping: consolidate and formalize camping in a campground located near the Squamish/Mamquam confluence, to be operated by the municipality or its agent.

2.4.2 Estuary - Public Access: at least three sites for proper public access should be developed: one for foot traffic along the Squamish River and down the training dyke; another would allow vehicular access and a cartop boat launch at the CRB logging dump; a third would permit foot access from the Royal Hudson trail along an interpretive walk off Vancouver Street. Parking, toilets, garbage receptacles and informational signing would be provided.

2.4.3 Industrial Interpretation: considerable potential exists for industry to undertake a program of landscaping, tours, public access and interpretive opportunities. This is particularly apparent in the Mamquam Channel where civic initiatives could develop an attractive waterfront/commercial development that would capitalize on the proximity of industrial activities and the waterfront itself as a public attraction.

2.4.4 Recreational Boat Marina: a civic marina should be developed to serve present and projected needs of Squamish residents.

2.4.5 Area Designation: it is imperative that some form of secure tenure be adopted for lands intended for conservation and recreation and that some agency be given the responsibility and the authority for management. It is suggested that the campground near the Squamish/Mamquam confluence be managed by the District of Squamish or its agent.

The remainder of the conservation area, including public access and interpretive facilities, should be managed by the Fish and Wildlife Branch as a Wildlife Management Area.

3. HISTORICAL PERSPECTIVE*

Native peoples were the earliest users of Squamish lands. However, their use is not well documented. In the late 1800's, several Indian reserves were established in the Squamish area, including numbers 17, 18, 19 and 24. Others (#1, #14 and #15) were located on the banks of the Squamish River further north. The reserve nearest the mouth of the river (#24) is located at the base of Stawamus Chief mountain. Designated in 1876, and resurveyed in 1914, this reserve contains 16.3 hectares.

The most complete discussion of recent (post 1870) land use history of Squamish is that of Stathers (1958), and the following summary relies heavily on this study.

Between 1873 and 1875, a cattle trail was constructed to bring finished beef from the Lillooet-Clinton district of the interior, to market. The first, and only, cattle trip over the route took place in 1877. The land was so rugged, however, that the route had to be abandoned.

It was also in 1877 that the first white settlers came to the Squamish valley. Later, in 1885, a group of Norwegians arrived and set up homesteads, only to have them destroyed by severe flooding. The group subsequently moved to Bella Coola. Despite the flood problems, however, people continued to move into the valley, and by 1889, interest in land was sufficient to warrant a legal survey.

During the late 1800's and early 1900's, the Squamish valley was becoming known as a good agricultural area. A hops ranch was started in 1894, but failed as a result of competition from the Chilliwack area. During this period, a portion of the delta was dyked and used for pasture and hay-growing.

Throughout the years of agricultural development, logging by hand methods of small timber stands along the river banks, became commonplace. In 1909, the Howe Sound and Pemberton Valley Northern Railway Company constructed a 24.2 kilometer line from tidewater, northward into the Cheakamus River valley, thus opening up larger timber tracts and facilitating the transport of logs to the booming grounds on the delta.

*Test is largely condensed from Environment Canada's 1974 report on the "Status of Environmental Knowledge."

1913 saw the takeover of the Howe Sound and Pemberton Valley Northern Railway Company by Pacific Great Eastern Railway Company (PGE). The management of the Howe Sound and Pemberton Valley Northern Railway had envisaged the development of Squamish into a great sea port, and the takeover was met with local ill-feeling. The company had even tried to rename the town "Newport." The concept of establishing a deep-sea port at Squamish, then, is not new, and it should have been of little surprise when the notion re-emerged in the late 1950's.

Despite the opening of a rail line from Squamish to Lillooet in 1915, growth of the Squamish community began to decline, and it did not reverse this trend until the end of the Second World War.

With the increasing population, land use conflicts began emerging. In May, 1949, the Squamish Valley Development Committee was formed in an attempt to settle the disputes. Requests for land allocation had come to the Department of Lands; valley residents complained about river erosion and flooding; the railway was interested in expanding; highway rights-of-way were needed; and an inadequate pattern of subdivision were just some of the problems to confront the committee upon its formation. Its response was to place a map reserve over the entire lower valley, and to freeze all crown land, and all Pacific Great Eastern land holdings. The committee was not disbanded until 1954. When it was, the reserve on crown lands, within the village boundary, was lifted, and parcels of land were put up for auction.

Before the land auction could be held, however, a dyking requirement study indicated that the expenditure of $16,500 was necessary for adequate protection from Squamish floods. This report resulted in a re-establishment of the sales restrictions on crown lands.

In 1957, Premier W.A.C. Bennett announced a British Columbia government plan to promote the development of Squamish into a sea port. Stathers (1958), and several groups after him (Minshall, *et al.*, 1958; Univ. of B.C., 1964; and Andru, *et al.*, 1970) felt that "the valley will be ultimately utilized to its greatest extent, a wonderful climax to an otherwise discouraging process of development."

The School of Community and Regional Planning, of the University of British Columbia, optimistically envisaged a "self-contained, industrially-based community of 30,000 persons located in the lower Squamish valley" (Univ. of B.C., 1964). Their plan included a 607 hectare industrial complex, a greatly expanded residential area, a core complex housing government, cultural and professional offices, and tourist facilities. The study recommended a major spine, 4-lane divided highway, with provision for explansion to six lanes in places, connecting this new metropolis with Vancouver. The major rivers were to be left unchanged except for the Squamish, adjacent to the proposed industrial site, "where considerable dredging and straightening will be necessary to provide deep-water frontage for shipping and a current rapid enough to forestall excessive silting." Lowlying areas would be protected from flooding by dykes with rip-rapping on both sides, from the mouth of the river to the Mamquam, and on the east side of the Squamish up to the Cheekeye Fan.

At the center of each plan to develop the Squamish delta was the construction of a deep-sea port. With the completion of the rail link between Squamish and Vancouver in 1956, and a highway in 1958, access to the area no longer presented a problem to development. In 1967, Pacific Great Eastern Railway announced a port construction plan (Bell, *et al.*, 1973).

Shortly after this (in 1970), Swan Wooster Engineering was commissioned by PGE Railway to do an in-depth study of land use possibilities for the delta (Andru, *et al.*, 1970). The analysis concluded that the delta was suitable for development as a manufacturing and trans-shipment point for PGE hinterland natural resources-based commodities. Activities anticipated for the port included the manufacturing, packaging, and exporting of forest products, and the export of coal to Japan. Such an expansion would, it was predicted, swell the population of Squamish to 30,000, and necessitate the relocation of the residential area to the north of the delta.

The actual port facility described by Swan Wooster (Andru, *et al.*, 1970) was to be centered around a deep-sea shipping channel, to be dredged approximately along the old Squamish River channel. The orientation was

selected to minimize dredge quantities, and to permit construction of berths in the approximate direction of northeast winds. Extensive reclaimed lands would be located to the east and north of the channel, as well as leaving a narrow land area inside the river training structure, to be used for log dumping and barge facilities.

To date, the port facility described by Swan Wooster (Andru, *et al.*, 1970) has not come into existence. The initial stages of construction were carried out, but the entire project was never completed. In 1971, approval was granted to commence design work for training of the Squamish River. February, March and April of that year saw the completion of topographic and sounding surveys of the intertidal of the west and central Squamish channels, and the beginning of construction of a three mile long training dyke on the east bank of the west channel. In 1972, dredging commenced in this channel, and a 106.7 metre wide trench was dredged to an elevation of 1.5 metres, for a distance of 1645.9 metres, north of the river mouth. In June, 1972, construction of the training dyke was completed (Bell, *et al.*, 1973).

It was about this time that public concern over the effects of development on the environment of the Squamish estuary prompted the Department of Environment to undertake an analysis of the entire project.

The report by the Lands Directorate (1972a) focused on the human environment of Squamish, and the impact and implications of further development of the delta. In terms of physical characteristics, much of the lowland terrain at the southern end of the Squamish valley is either floodplain or part of an extensive alluvial fan; and the behaviour of the water courses associated with these land forms is unpredictable. Terrain on an alluvial fan, such as that of the Mamquam River, is subject to unpredictable hazards owing to channel shifting. Much of the remaining delta (notably the areas designated for future development) is an active floodplain.

Basin soil and landform surveys indicated that the Squamish River floodplain was of poor suitability for urban development (Lands Directorate, 1972a). In fact, soils were so unfavourable as to require major

reclamation, or special protective designs. Limitations for septic tank absorption fields, sewage lagoons, dwellings, and other structures were severe to moderate due to fluctuating water tables, high permeability, and danger of flooding. To overcome such problems would be costly and probably impractical.

The analysis of river control dykes indicated that, if the population of Squamish did indeed swell to 30,000 (Andru, *et al.*, 1970), major additions to the present dykes would be essential, and, in fact, the whole project would need to be re-evaluated. Land areas and slopes immediately east of the Squamish lowlands were rated as good to fair suitability for urban development, and could have been considered as an alternative to expensive floodplain development.

Finally, the Lands Directorate report (1972a) noted that the impact of the project, and future back-up development, on Indian rights, values and lands had not been analyzed, or even considered, in any of the planning reports.

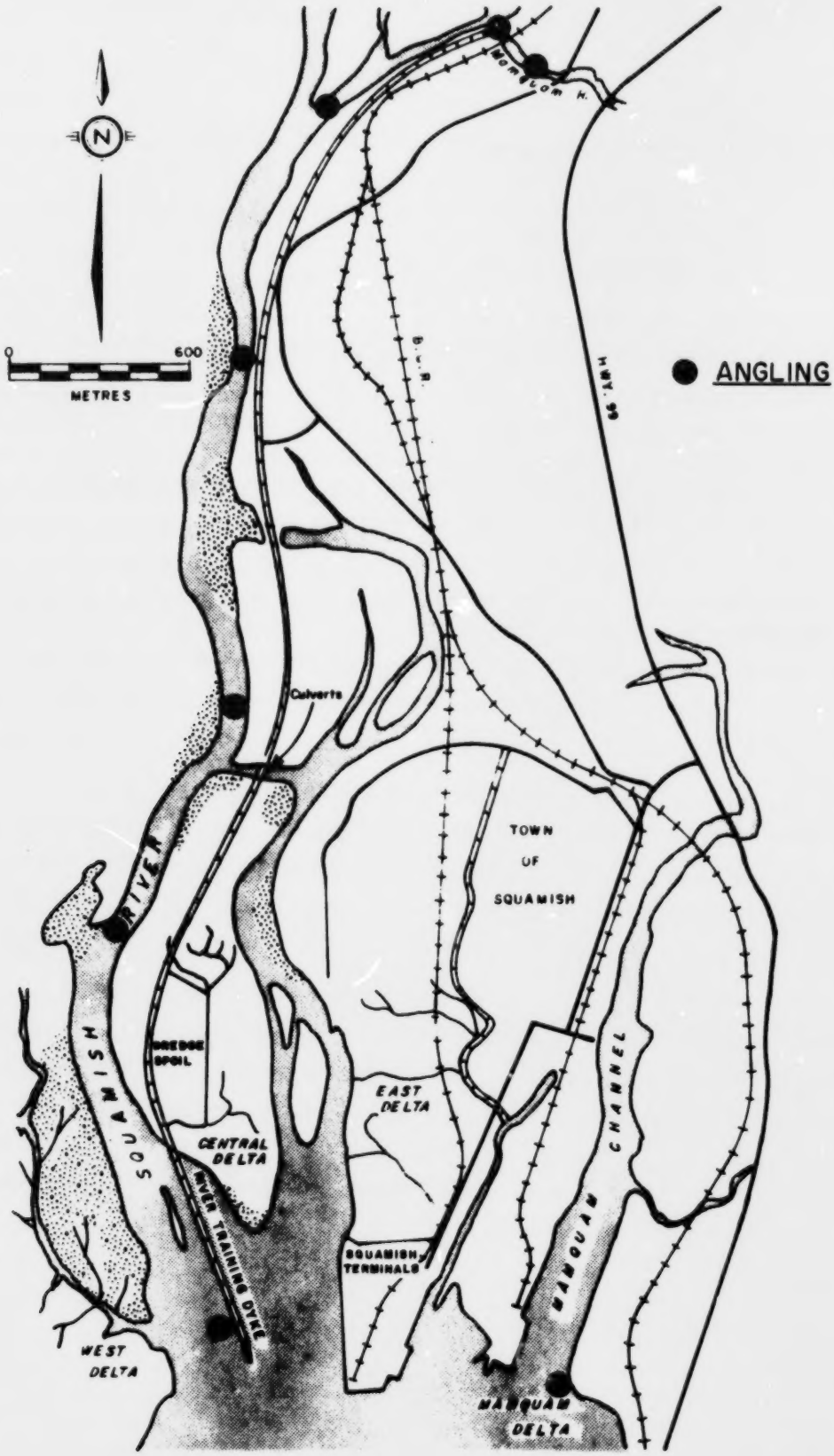
Due to the results of the environmental impact studies, and pressure from interest groups, the port development proposal met with opposition and did not proceed. The history of the port controversy reflects the evolution of public attitudes and of a changing land use emphasis for the Squamish area.

On May 2, 1979, the Canada Department of Fisheries and Oceans and the British Columbia Ministry of Environment jointly announced that a Management Plan would be developed for the Squamish Estuary. With the aid of concerned members of the public and the District of Squamish, Federal and Provincial Resource agencies undertook the work to develop the Management Plan. Target date for completion is late in 1980.

4. EXISTING RECREATIONAL ACTIVITIES

Although only a fraction of the estuary is actually used by recreationlists, a much larger area forms a critical link in the food chain and habitat of fish and birdlife that are themselves the objects of various recreational pursuits. Only those sites directly used by recreationalists have been discussed in this section. An in-depth review of the sites valuable as habitat for fish and birds can be found in the Habitat Work Group final report.

Leisure activities in the estuary could be grouped into seven categories for discussion purposes: angling, hunting, nature observation, camping, walking, boating and tourism. Each is discussed here by activity, although a more detailed recreational site inventory can be found in Appendix IV.



SQUAMISH ESTUARY MANAGEMENT PLAN Figure 2

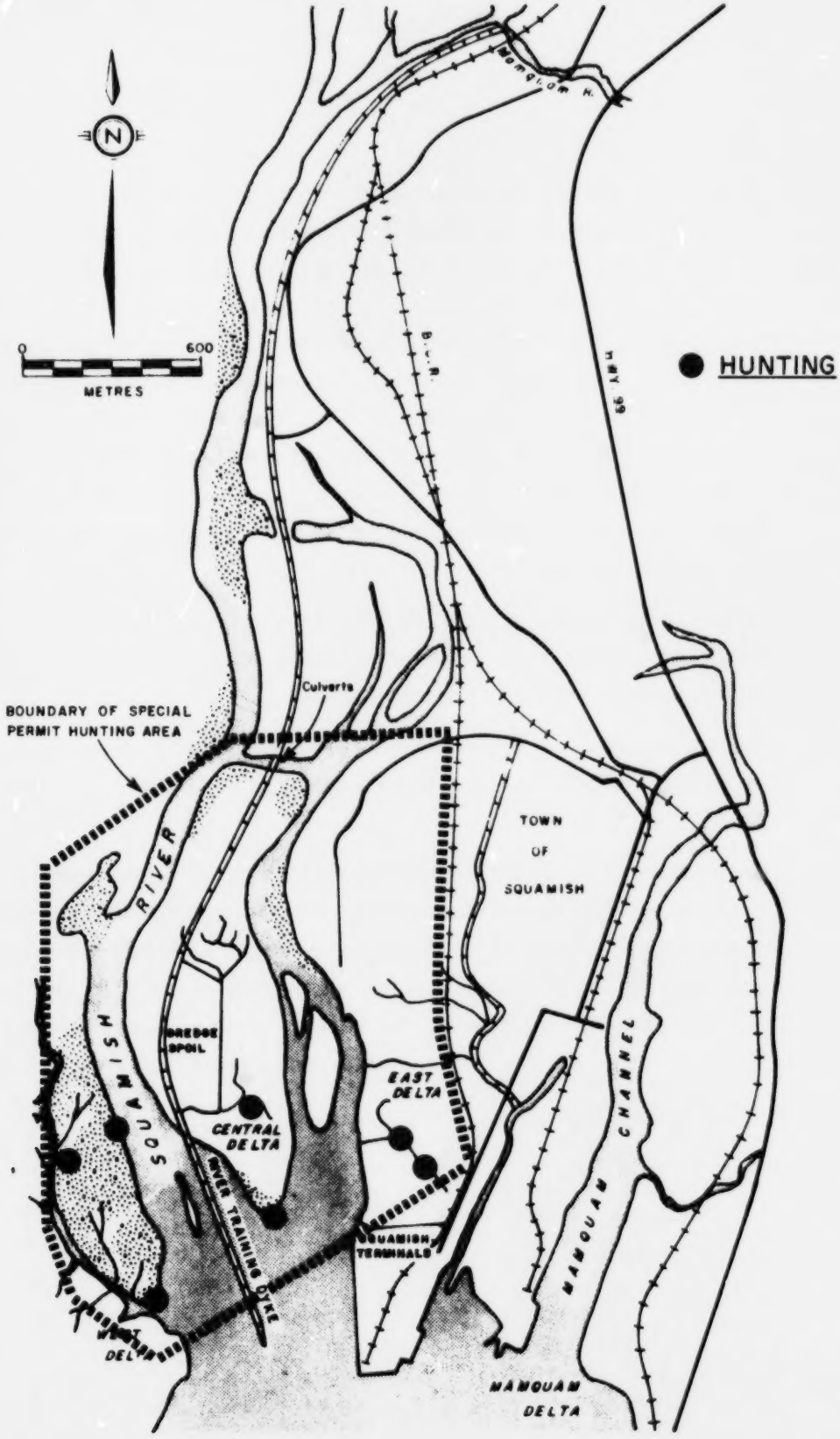
4.1 Angling

Within the study area, most of the observed angling takes place along the rivers. The Squamish and Mamquam River produce salmon, steelhead and cutthroat trout and several popular fishing sites in this area attract both local and regional users. The Squamish steelhead trout fishery has surplanted the Vedder system as the second most regionally important steelhead trout river, in terms of quality of angling, number of fish taken and number of anglers participating. A 1978 Creel census shows that almost 87% of the anglers were from the metro Vancouver area with local residents accounting for the difference. Riverside camping is often observed in conjunction with river angling.

Some saltwater angling takes place at the mouth of the Squamish River and potential exists for an enhanced fishery in both the central delta and the Mamquam channel.

Access both to the river and to saltwater remains difficult, with no directional or informational signs and no formal parking areas or staging facilities.

The economic impact of recreational fishing, and the boating associated with it, is substantial. Howe Sound's recreational fishery is a multimillion dollar industry. With additional habitat enhancement and proper marketing of the opportunity in the Squamish system, this value could be increased. With further habitat loss or deterioration, the fishery will undoubtedly suffer.



SQUAMISH ESTUARY MANAGEMENT PLAN Figure 3

4.2 Hunting

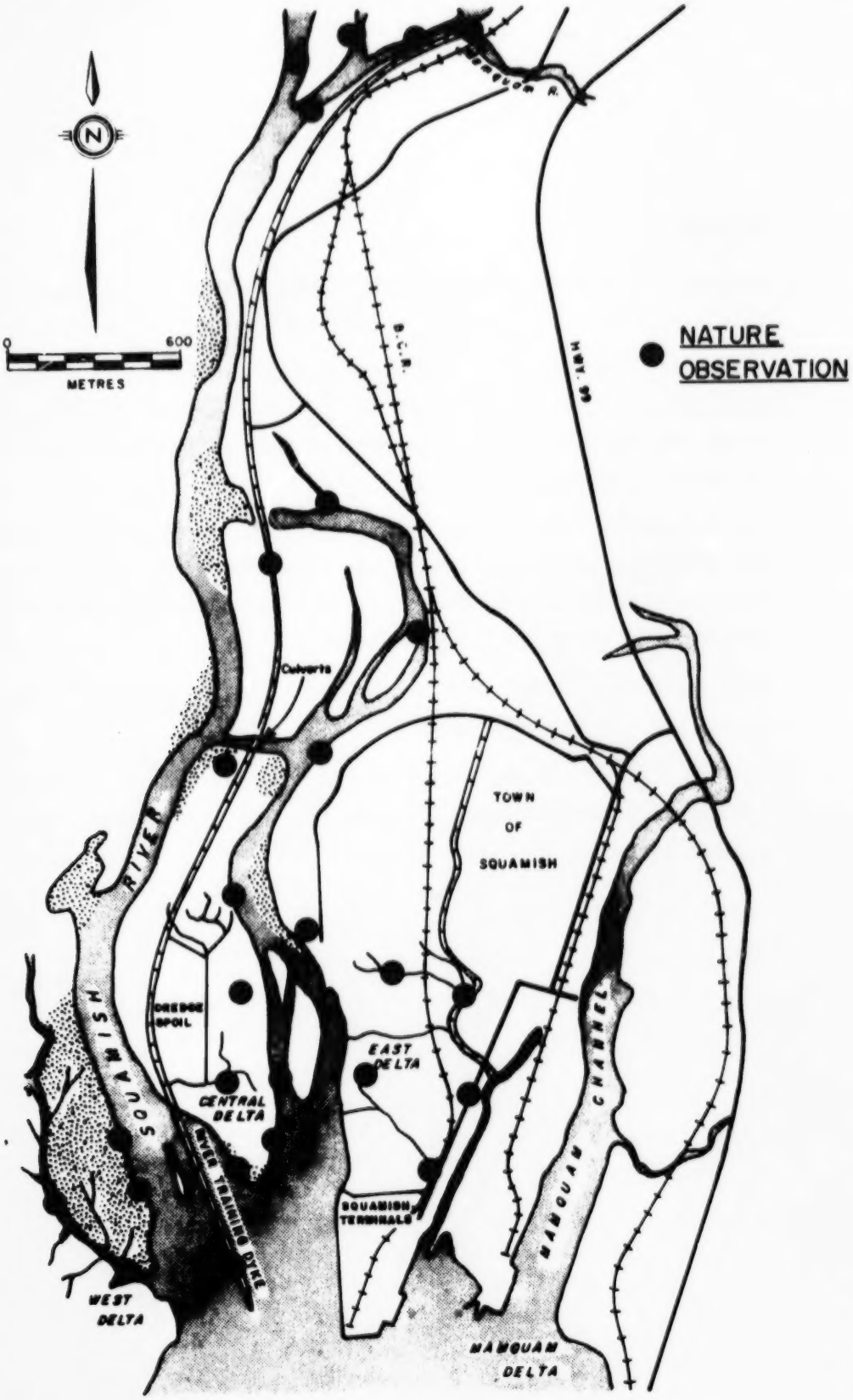
Hunting for waterfowl is an active local pursuit in the study area. More than 90% of the permits in 1979 were issued to Squamish residents.

A special permit hunting area extends from the west side of the West Delta to a line parallel to and 137.2 metres west of the B.C. Railway tracks in the East Delta. The northern extremity of the permit area is in the dyke culverts.

The West Delta is a popular spot for bird hunters, probably due to the extensive concentrations of waterfowl there and the minimal conflict with other users. Access is by small boat which must come from the boat launch in the Mamquam Channel.

Some hunting for deer, bear and upland birds has been reported on the slopes west of the West Delta.

As with angling and most other recreation opportunities, the loss of habitat to other resource or recreation uses is the most important element affecting hunting.



SQUAMISH ESTUARY MANAGEMENT PLAN

Figure 4

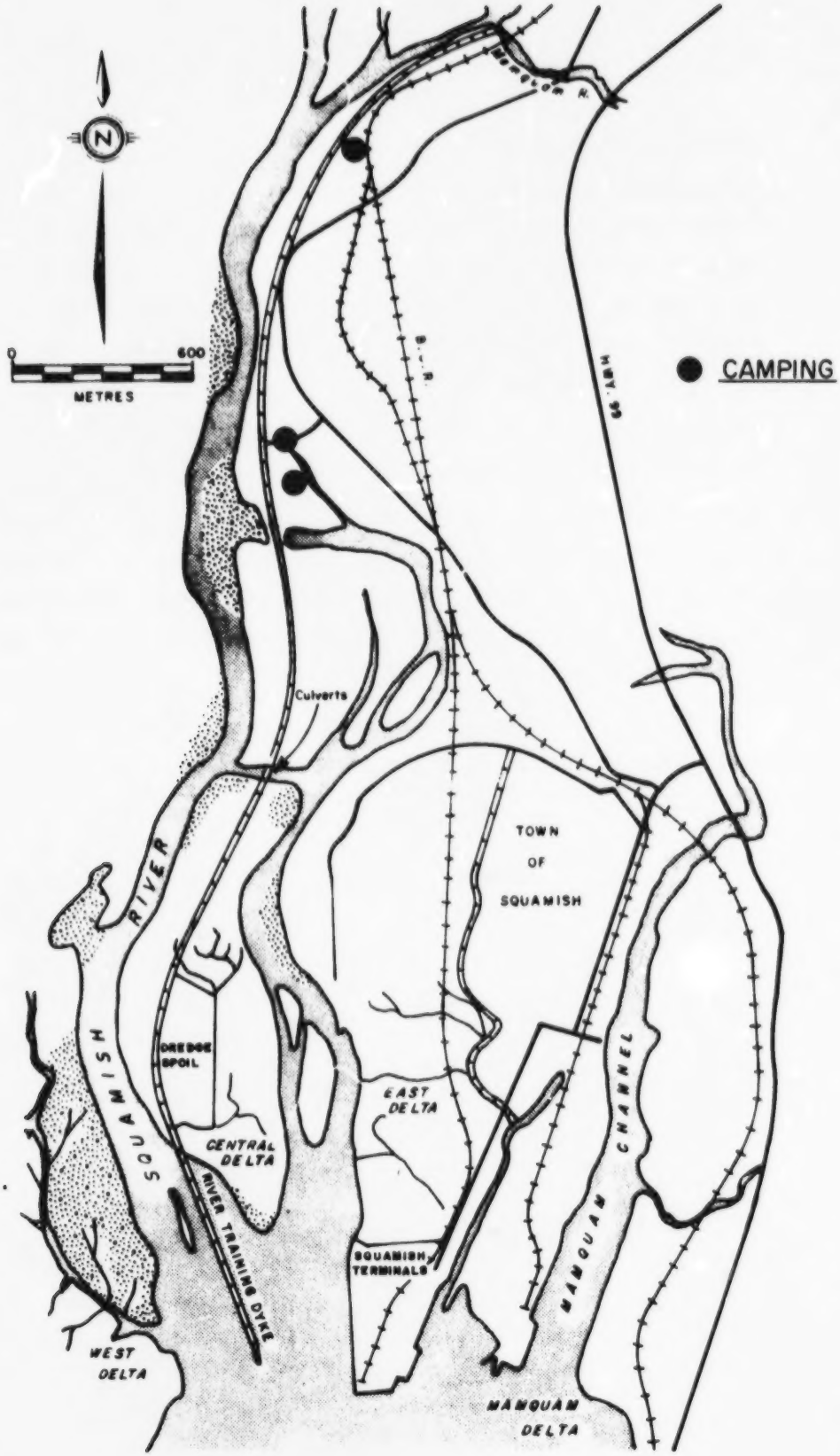
4.3 Nature Observation

Probably the most noteworthy attraction in the study area is the impressive congregation of bald eagles that gathers at the Squamish-Mamquam confluence each fall (November-January) to feed upon the carcasses of spawning salmon. In 1979, some 1,500 birds were sighted, making this one of the highest recorded concentrations in the world, and offering a unique opportunity for tourism.

Other bird species are observed in the estuary in appreciable numbers, including trumpeter swans, ducks, geese and a variety of shore and water birds.

Local and regional nature groups frequent the estuary to view bird-life or to observe estuarine processes and plant communities. Access is not easy for groups or individuals unfamiliar with the area, as no parking lot, facilities or signing exist.

Here too, habitat loss due to competing resource or other recreation uses, notably hunting is the most important element affecting this opportunity.



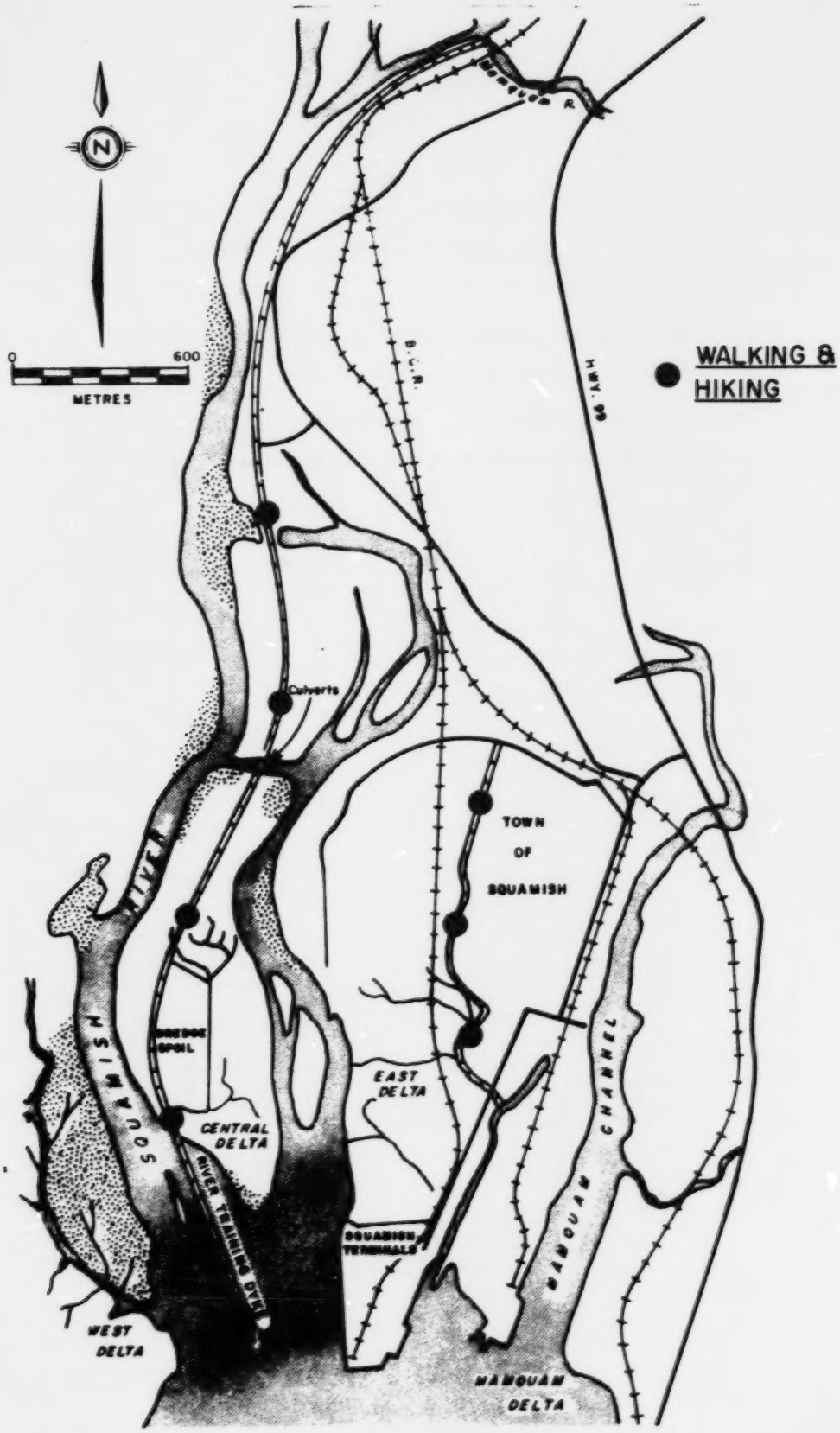
SQUAMISH ESTUARY MANAGEMENT PLAN Figure 5

4.4 Camping

Most of the observed camping in the estuary appears to be associated with angling in the Squamish or Mamquam Rivers, although some bird watchers also stop there.

Camping is largely done with recreational vehicles and takes place all year, in reflection of the seasonal variety of spawning runs.

There are no garbage or toilet facilities in the area and campers occupy a series of rough sites along the dyke road.



SQUAMISH ESTUARY MANAGEMENT PLAN Figure 6

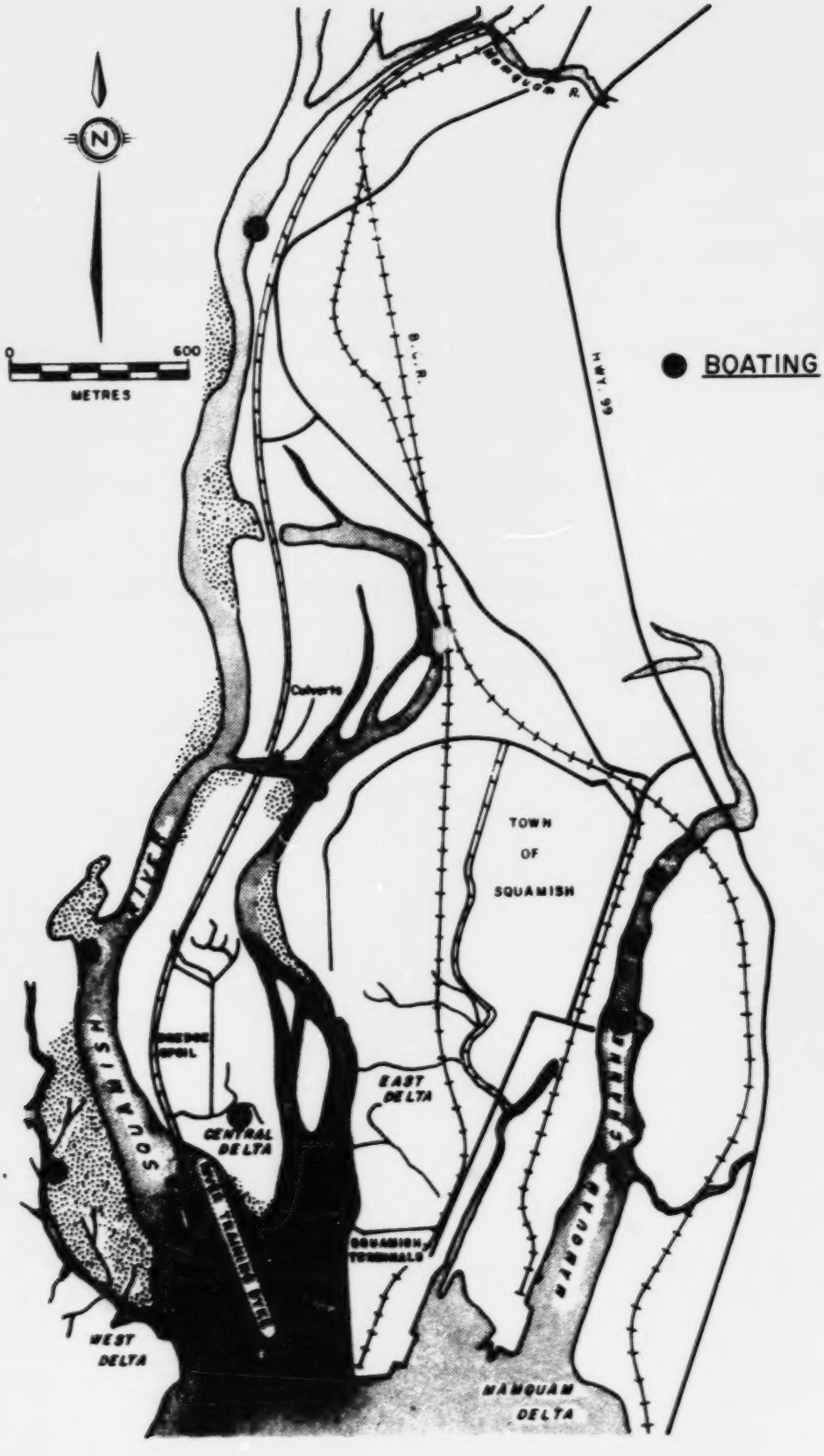
4.5 Walking

Walking, hiking and jogging are popular activities in the estuary area, often associated with nature observation.

Easy access routes along the river training dyke and on the dyke road just west of the townsite are favoured by bird watchers, exercise buffs, anglers, nature enthusiasts and leisurely strollers.

Access is difficult to find for those unfamiliar with the estuary and no facilities or signing exist.

The trail to Echo and Alec Lakes commences at the West Delta and climbs over 914.4 vertical metres on an abandoned tote road. Access to the trailhead requires a boat.



SQUAMISH ESTUARY MANAGEMENT PLAN Figure 7

4.6 Boating

In the estuary itself, some shallow draft boating takes place with canoes, skiffs, rafts and punts.

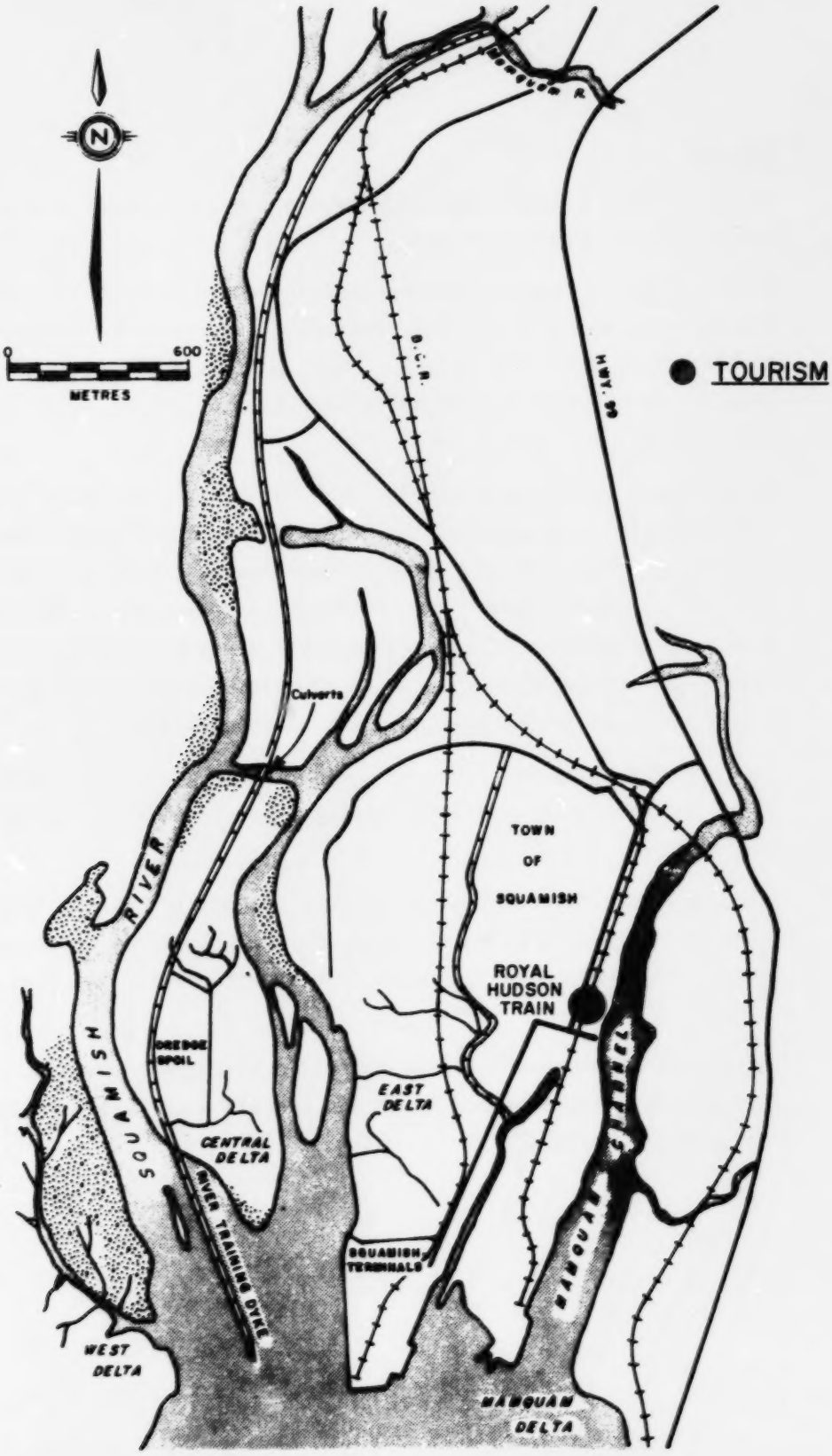
Fishing, nature observation, hunting and small boating for pleasure are the main pursuits in this area and all users share the common problem of inconvenient access. Small boaters must put in at the Mamquam channel, negotiate industrial traffic and choppy water to reach the estuary.

Larger boats also have a problem with berthage. The Squamish Yacht Club maintains and operates the only facility for pleasure boaters in upper Howe Sound, and it currently operates at capacity. The Federal Government's Small Craft Harbours Branch also operates a wharf, however, its mandate is to serve commercial boats rather than pleasure craft. No civic marina exists and the prospect of expansion of yacht club facilities in its present location appears dim.

Existing and projected pleasure boating demands in upper Howe Sound would indicate that additional berthage and facilities for the public are in order.

Traffic in the Mamquam Channel is very congested. Boats, aircraft, booms and barges compete for space and the problem is compounded by lessees who frequently ignore their designated water lot lease boundaries.

Pollutants in the channel from corrosive airborne chemicals, oil and fuel spills, leachates and deadheads are all sources of irritation to recreational boaters.



SQUAMISH ESTUARY MANAGEMENT PLAN Figure 8

4.7 Tourism

The town of Squamish has roots deep in its industrial past and it is likely that industry and transportation will continue to be dominant activities here in years to come.

With suitable waterfront property in demand for commerce and industry, it is understandable how the present lack of public access has evolved.

The public has been discouraged from entering private or industrial sites along the Mamquam Channel and elsewhere in the estuary, often with good reason. Conflicts with industrial traffic and activity have raised legitimate concerns with safety.

As the town of Squamish has grown, the recreational interests of its residents have required consideration. Additionally, to diversify the economic base of the community, alternate attractions must be developed. One such attraction could involve tourism.

At the head of Howe Sound, the town could capitalize on its location and attractive scenery for tourist potential. Some development would be necessary, however, to improve public access to the waterfront and the estuary if this is to be achieved.

It is unlikely that the town of Squamish will become a major focus for tourism or regional recreation in the near future. Most of the recreational activities in the area (skiing, fishing, boating, hunting, nature observation, viewing, etc.) exist in spite of the town's development and not because of it.

Nevertheless, tourism could be encouraged through careful nurturing, planning and tasteful development.

Recent and impending development in the Whistler area, some 80 km north of Squamish is expected to increase Highway 99 traffic volumes considerably. However, the net spinoff to Squamish itself will likely be marginal. Most of the increase in traffic will be during the winter ski season when the Squamish climate is least conducive to tourism (ardent fishermen and birdwatchers excluded). Recent highway improve-

4.7 Tourism - Continued

ments have increased the speed and volume of through traffic but have done little to encourage tourists to spend more time in Squamish. A signing program for the town and estuary needs to develop a theme of attractions that will inform passers-by of the opportunities available and induce them to stop. The opportunities themselves will also require development.

5. DISCUSSION

The foregoing review of existing recreational activities in the study area illuminates some common maladies.

Lack of public access to the waterfront in the Mamquam Channel on the Squamish River and in the estuary has resulted in a substantial omission of opportunities for recreation.

The absence of directional and informational signing makes the estuary impenetrable to those visitors unfamiliar with the area.

For the want of basic facilities, improper or ineffective use is made of some sites. Toilets, garbage receptacles, parking and camping sites, interpretive facilities and a small boat launch would concentrate and yet accommodate public use of the estuary.

Facilities for recreational boat moorage in the Mamquam Channel should be developed to complement those berths provided by the Yacht Club. A public waterfront/commercial development could incorporate a civic marina.

The tourism potential of Squamish, limited though it is, has been relatively untapped. The Royal Hudson trail provides over 600 visitors a day to Squamish each summer, but the town provides relatively little in return. In addition, the river angling and the significant population of bald eagles offer excellent opportunities to promote the area. An effort to not merely accommodate, but to encourage such visitation should pay dividends. The town's economy and local and regional residents could all benefit from more information, access and facilities in both the estuary and townsite.

There are various ways and means of accomplishing this increased awareness. Many of them are discussed in detail in the Open Space Conservancy Manual of Legal Techniques published by the Greater Vancouver Regional District.

6. RECOMMENDATIONS

There are several projects which should be undertaken to improve public information and accessibility and to give the estuary a higher profile:

6.1 Riverside Camping: consolidate and formalize camping in a campground located near the Squamish/Mamquam confluence, to be operated by the municipality or its agent. The site suggested is a relatively self-contained parcel of crown land, buffered by railway tracks, road and training dyke.

6.2 Estuary - Public Access: at least three sites for proper public access should be developed: one for foot traffic along the Squamish River and down the retaining dyke; another would allow vehicular access and a cartop boat launch at the CRB logging dump; a third would permit foot access from the Royal Hudson train along an interpretive walk off Vancouver Street. Parking, toilets, garbage receptacles and informational signing would be provided.

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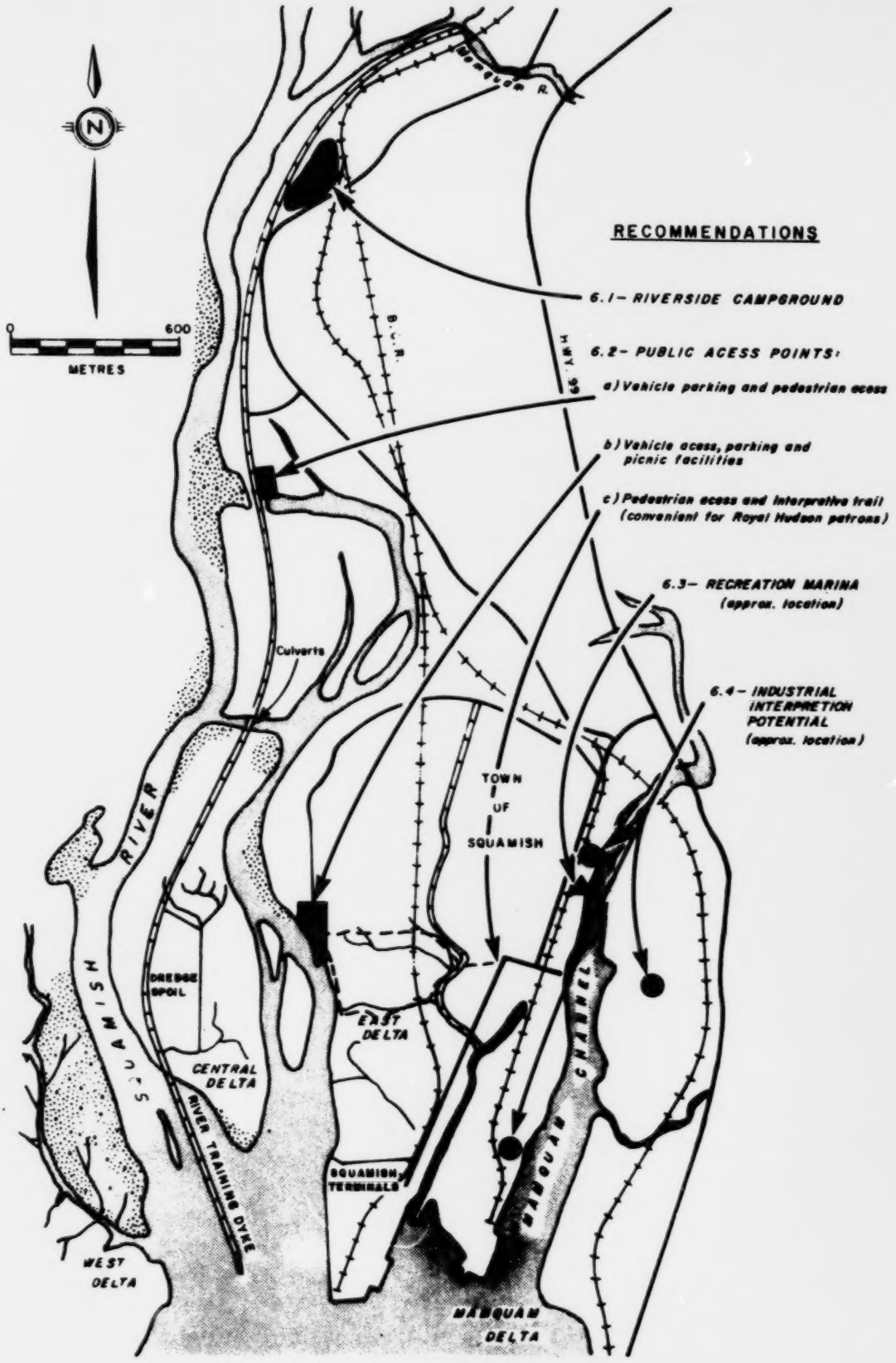
6.5 Area Designation: it is imperative that some form of secure tenure be adopted for lands intended for conservation and recreation and that some agency be given the responsibility and the authority for management. It is suggested that the campground near the Squamish/Mamquam confluence be managed by the District of Squamish or its agent.

The remainder of the conservation area, including public access and interpretive facilities should be managed by the Fish and Wildlife Branch as a Wildlife Management Area.

As part of area designation, a public awareness program, through brochures and both general directional and information signing should be undertaken.



SQUAMISH ESTUARY MANAGEMENT PLAN Figure 9

APPENDICES

APPENDIX I

SQUAMISH ESTUARY STUDY - TERMS OF REFERENCE (RECREATION WORK GROUP)

	PHASE I (MARCH 14, 1980)	PHASE II (AUGUST 15, 1980)
Objectives:	Identify: 1) Recreation Resource Characteristics 2) Uses/Users 3) Demands (Present and Projected) 4) Problems/Conflicts	Develop: 1) Management Options 2) Problem resolution 3) Use priorization 4) Plan Development
Tasks:	Inventory: 1) Recreation Users (Present and Projected) 2) Recreation Uses (Present and Projected) 3) Recreation values of specific sites 4) History of study area and community 5) Archaeological/historic sites	Develop: 1) Identify and priorize options for Recreation and Management 2) Define criteria and management considerations for options 3) Means and measures to optimize individual recreational opportunities
Method:	1) Compile site inventory from: a) existing literature b) primary users (public) c) observation and reported use 2) Assess Regional Recreation Role by: a) reviewing existing literature b) liaison with Regional users 3) Compile Historic Perspective from existing literature.	1) Assess present and projected conflict from: a) Inventory review b) liaison with other Work Groups c) liaison with Public Involvement W.G. d) informal liaison with other users 2) Develop management recommendations by: a) assessing acceptable level of impact on recreation resource in the study area b) assessing criteria for management of recreation c) liaison with other W.G.'s (including the public) on a priorization of critical zones within the study area.

APPENDIX II

RECREATIONAL BOATING AND FISHING

- Economic Impact -

ECONOMIC IMPACT OF RECREATIONAL BOATING IN BRITISH COLUMBIA*

The aggregate value of recreational boats and trailers presently owned by coastal British Columbians is estimated at $450 million. (Meyer and Harrison, 1976). Total capital expenditure on boats in the Province was about $80 million in 1976, while operating costs amounted to an additional $70 million. Renters spent a further $2.5 million, while non-residents accounted for $1.2 million (based upon marina expenditures only).

It is estimated that these expenditures generated or supported about $56 million in income and produced $7 million of tax revenue in B. C. Additional indirect income is placed at about $20 million, resulting in an estimated total of $75 million attributable to recreational boating in this province in 1976.

Georgia Strait households owned 69% of all boats in British Columbia in 1974 and a reported 68% of all overnight trips in this region were to the southwest coast of the B. C. Mainland (1977). It is a reasonable assumption, therefore, that most of the aforementioned economic benefit was attributable to the proximity and attractivity of the southwest mainland coast - including Howe Sound.

The southern portion of Howe Sound was closed to commercial fishing prior to the 1940's in recognition of the high quality of the recreational fishing there. This was the first area in Canada to be so designated. In 1963, the federal government acknowledged the whole of Howe Sound as a valuable sport fishing reserve and closed the entire Sound to all commercial salmon fishing.

*Shaffer, *et al.*, 1977.

FISHING TRIPS IN THE SOUTH COAST BY AREA*

	# TRIPS/YR.	% FISHING AS: PRIMARY	(SECONDARY) ACTIVITY	TOTAL # FISHING TRIPS/YR.
GIBSONS	19,000	77	(20)	19,000
SQUAMISH	11,000	56	(17)	8,000
NORTH SHORE	173,000	48	(13)	106,000
GREATER VANCOUVER	593,000	44	(29)	433,000
BURNABY	247,000	70	(8)	193,000
			TOTAL TRIPS:	759,000/Year

EXPENDITURES PER TRIP

	# FISHING TRIPS	FISHING RELATED EXPENDITURES/ TRIP (YEAR)	OTHER EXPENDITURES/TRIP	TOTAL	(1978) TOTAL EXPENDITURES
GIBSONS	19,000	$4.11 ($ 78,000)	$18.43	$22.54	$ 428,000
SQUAMISH	8,000	4.40 (35,000)	24.85	29.25	234,000
NORTH SHORE	106,000	4.81 (510,000)	26.47	31.28	3,316,000
GREATER VAN.	433,000	4.82 (2,100,000)	22.97	27.79	12,033,000
BURNABY	193,000	7.18 (1,400,000)	24.33	31.51	6,081,000
TOTAL:	759,000	($3,664,000)			$22,092,000

i.e. Total fishing-related expenditure per fishing trip is in excess of $3.6 million/year

Total boating expenditure for fishing trips in the south coast exceeds $22 million/year

*From: Harrison, M., 1979. Resident Boating in Georgia Strait, 1979 update.

Recreational boating and related boating activities are obviously important to the economy of the southwest coast. An undetermined portion of the fishery in the south coast is attributable to the Squamish system, including river fishing effort not dealt with in this literature.

BOAT AND BOATING IN SQUAMISH (AFTER HARRISON, 1979)

1) STORAGE

66% of the boats are stored out of the water.

33% are moored at a marina or private wharf.

33% of the boat-owners in Squamish have trailers.

33% of the boat-owners have car toppers, canoes or kayaks.

2) USE

38% is the average proportion of saltwater use.

46% of the use takes place in fresh water.

3) VALUE

The average value of boats in Squamish is $3,355 (i.e. about one-half the average in Georgia Strait.)

4) OWNER DISSATISFACTION WITH SQUAMISH FACILITIES

Facility	% Dissatisfied (Georgia Strait average)	
	1973	1979
Launching	26% (20)	14% (22)
Berthing	36% (20)	28% (7)
Other	15% (13)	
Fueling	--	14% (6)
Water	--	7% (2)
All Adequate	21% (23)	7% (32)

5) 1979 ACTIVITIES (1978)

	Primary	Secondary
Fishing	55% (89%)	16%
Cruising	16% (5%)	50%
Other	11% (5%)	--
Sailing	5% --	6%
Socializing	11% --	28%

6) 1979 FISHING SUCCESS (1973)

	Squamish Boaters		Georgia Strait Average	
Average No. of Crabs Taken	(6.5)	9.0	(10.6)	21.5
Average No. of Salmon Taken	(9.7)	11.6	(1.9)	4.2

BOAT NUMBERS AND TYPE AT SQUAMISH IN 1979 (GEORGIA STRAIT AVERAGE)

Primary boats	510	
Secondary boats	128	
Trailers	186	
Sailboats	9%	(12%)
Outboard	33%	(51%)
Inboard/Outboard	24%	(24%)
Rowboats, canoes, etc.	33%	(14%)
NO MOTOR on Primary boat	38%	(15%)

ADDITIONAL NOTES ON LOCAL BOATING

* Much of the saltwater recreational boating in Squamish involves the local Yacht Club which occupies land leased by the District from Weldwood.
* The Yacht Club has built, maintains and operates the only public boat launch in the upper part of Howe Sound.
* The Yacht Club provides a large proportion of the moorage for recreational boats in Squamish and is currently experiencing peak demands in berth, parking and launching capacities.
* Current conflicts include log booms, seaplanes, corrosive (air) chemical emissions, fuel spills and industrial traffic on the upland.
* Use levels appear to be on the increase and there is limited space for expansion on the current site or elsewhere in the vicinity of Squamish. No civic marina exists even though the demand for berthage exceeds the Yacht Club's physical capabilities.

APPENDIX III

Royal Hudson

Excursion Data

ROYAL HUDSON EXCURSION

1978 Use - 107 trips
636 persons/trip (average)

- Approximate annual use: 68,000

Recreation - Implications for Squamish and study area:
Due to the limited time spent in Squamish (2 hours), patrons are restricted in the distance they can roam from the train.

Environmental interpretation opportunities exist, although this area remains untapped to date.

Industrial interpretation might be developed at the Mamquam Channel. (Some conflict with logging truck traffic apparently exists and should be resolved if the public is to be drawn east of the railroad tracks.)

TOTAL USE

Year	Passengers	Trips Made	Average Persons/Trip
1979	67,165	101	665 persons
1978	68,004	107	635 persons
1977	68,385	108	633 persons
1976	60,732	103	558 persons
1975	68,073	113	602 persons
1974	46,000	87	529 persons

Origin of Passengers (1978)	No.	%
Vancouver	24,685	36.3%
British Columbia	8,568	12.6%
Total - British Columbia	33,253	48.9%
Total - Other Canada	10,133	14.9%
Total - U.S.A.	18,020	26.5%
Total - Overseas	6,596	9.7%

Impact on Squamish (1978)

Revenue generated in Squamish was $312,800.

Impact on Vancouver (1978)

In excess of 24% of the passengers lengthened their stay in Vancouver for the purpose of riding the Royal Hudson. It is estimated that these visitors contributed over $320,000 in the Vancouver area, as a spinoff from the trip to Squamish.

Survey Ratings

Squamish was rated as adequate, fair or poor by 56.1% of the passengers. The major complaints involved shop closures on Sundays, the lack of souvenirs and that the stay in Squamish was too long. Passengers frequently suggested that the train should stop at Britannia Beach to visit the Mining Museum.

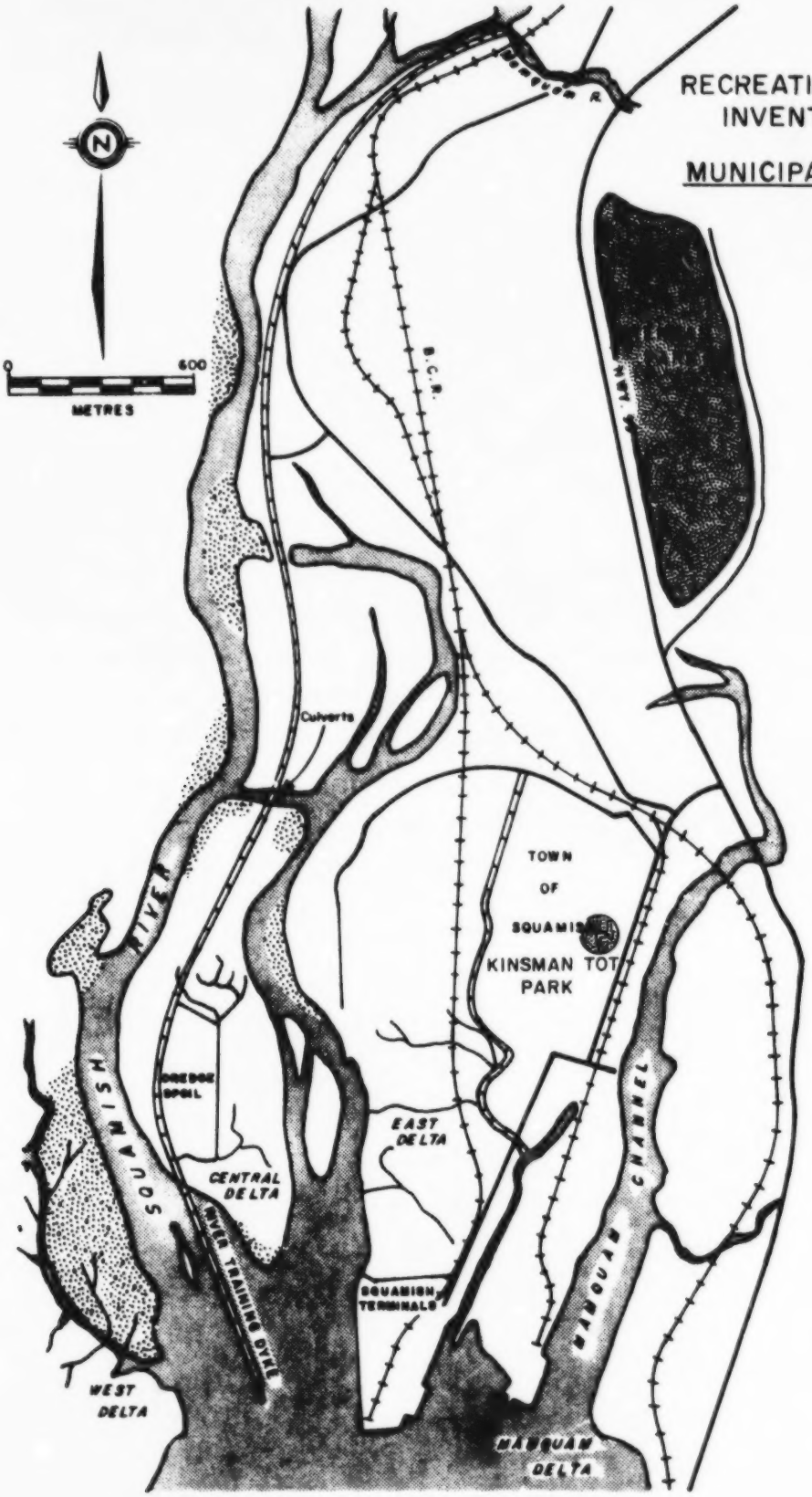
There was a feeling that Squamish had no coherent attractions for train patrons.

APPENDIX IV

Recreation

Site

Inventory



SQUAMISH ESTUARY MANAGEMENT PLAN

Brennan Park
Kinsman Tot Park

There are two recreational parks in the study area.

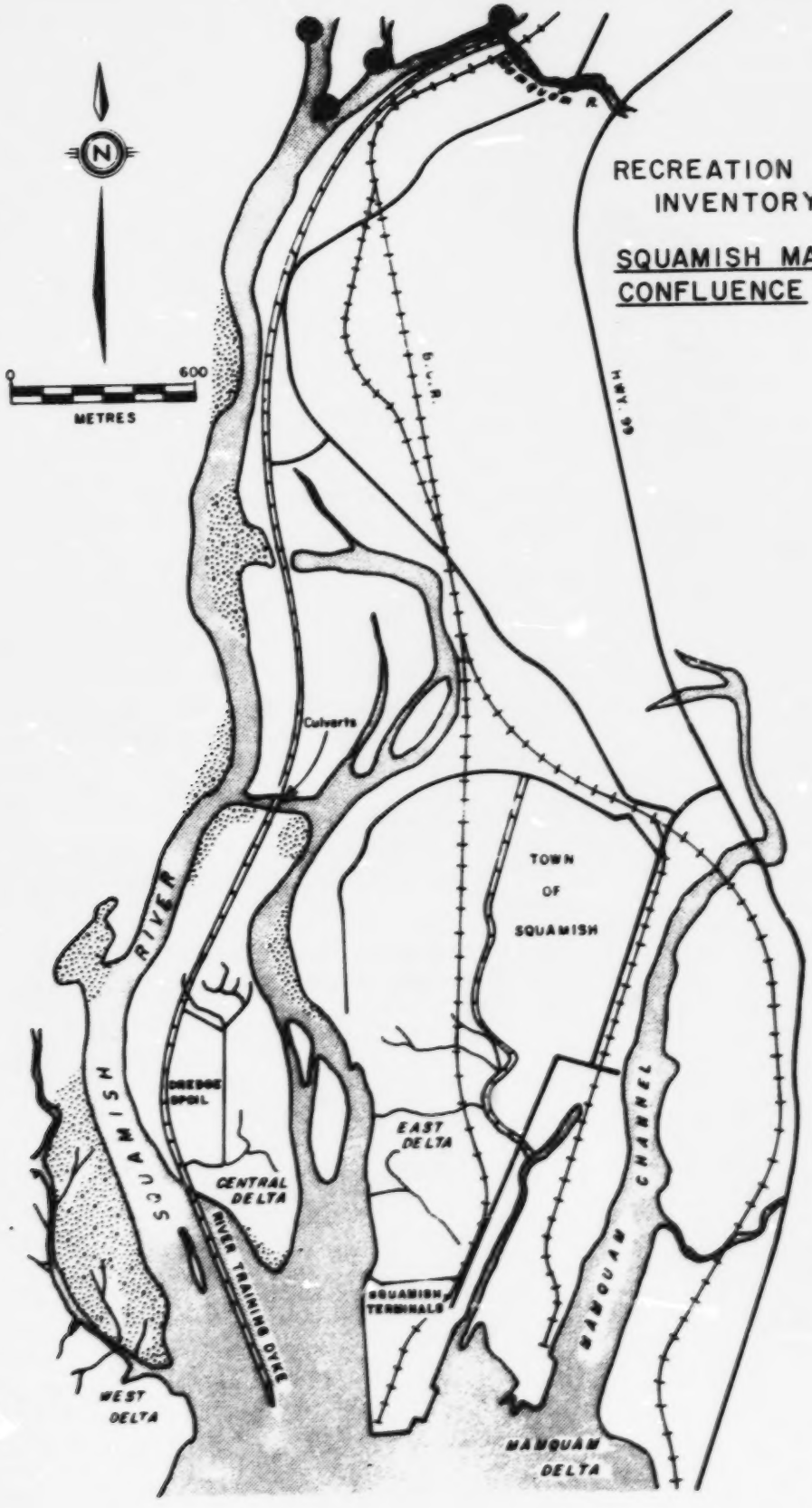
Brennan Park

- Facilities include skating arena, playing fields, gymnasium with ample space to expand for additional playing fields, parking, etc.
- It has been proposed that the site of the Annual Logger Sports Show be moved from downtown to this park.

Kinsman Tot Park

- Near city centre, a small urban park used primarily by Royal Hudson patrons for picnics.

Access to Brennan Park is off Highway 99 at the Mamquam bridge, although an alternate route is via Loggers Lane.



SQUAMISH ESTUARY MANAGEMENT PLAN

Squamish-Mamquam Confluence

Birdwatching

- Bald eagles congregate here in abundance (November - January) to feed on spawning salmon. In 1979, 1,500 birds were sighted, making this one of the highest recorded concentrations in the world.
- Used by local and regional clubs.

Angling

- Steelhead and salmon fishing are popular here.

Picnicking

- Often associated with angling, nature observation and beach activities on the gravel bar.

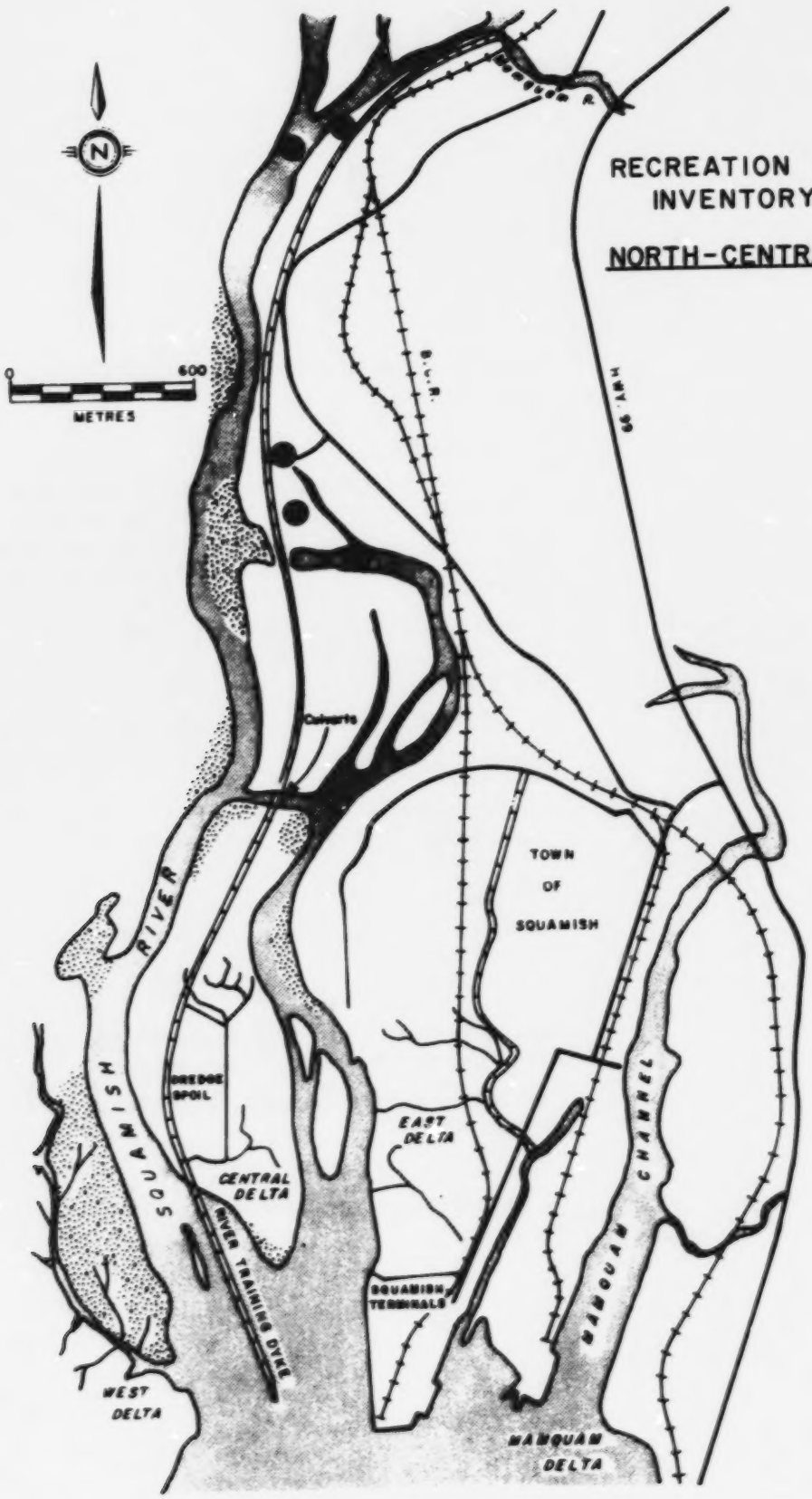
Boating

- Canoes, kayaks, tubes, rafts and wetsuit enthusiasts.

Access is from the old Mamquam Bridge or from the dyke road to the south (foot access).

Parking is a problem here, especially during peak use periods.

No interpretive or sanitary facilities are currently available.



SQUAMISH ESTUARY MANAGEMENT PLAN

North central Delta (Just east of Dyke)

Camping

- Largely R.V. camping associated with river angling and birdwatching. No facilities.

Boating (Center channel)

- Some shallow draft boating, often in conjunction with nature observation.

Boating (River use)

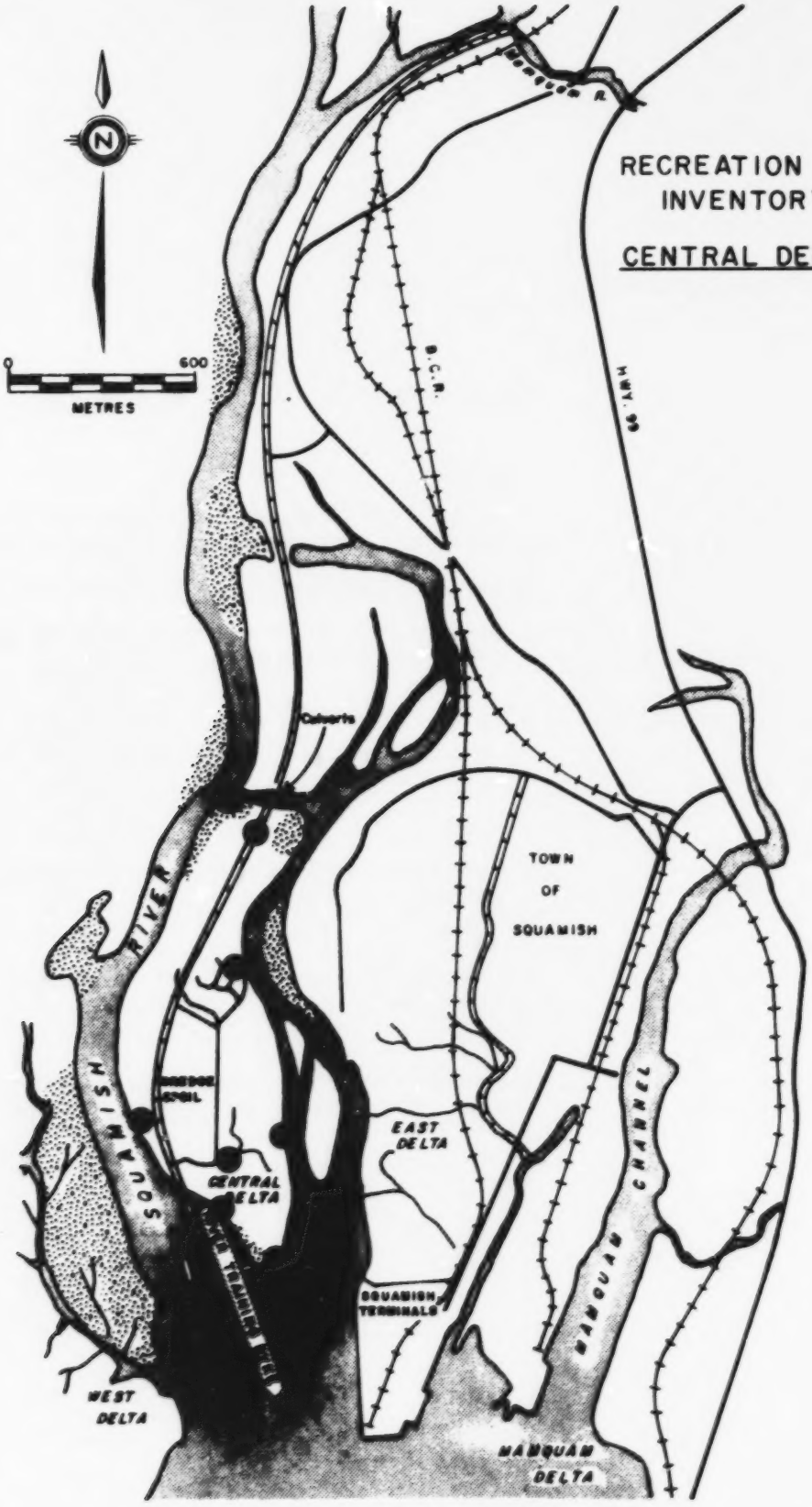
- some use by canoe, kayak, tube, raft and wet-suit enthusiasts.

Angling

- Some river angling for salmon, steelhead and cut-throat.

Access is via a spur road off Government Road, west of the B. C. Railroad tracks.

Riverside camping appears to enjoy considerable demand, particularly during peak fishing periods.



SQUAMISH ESTUARY MANAGEMENT PLAN

Central Delta

Walking and Jogging

- on training dyke road for pleasure or for exercise.

Nature Observation

- at many locations and includes bird watching, flora and fauna.
- (trumpeter swans in north and central channels; harbour seals in the river; eagles; ducks; geese and other waterfowl; plant communities; etc.)

Boating

- shallow draft boating, often in conjunction with angling and nature observation.

Hunting

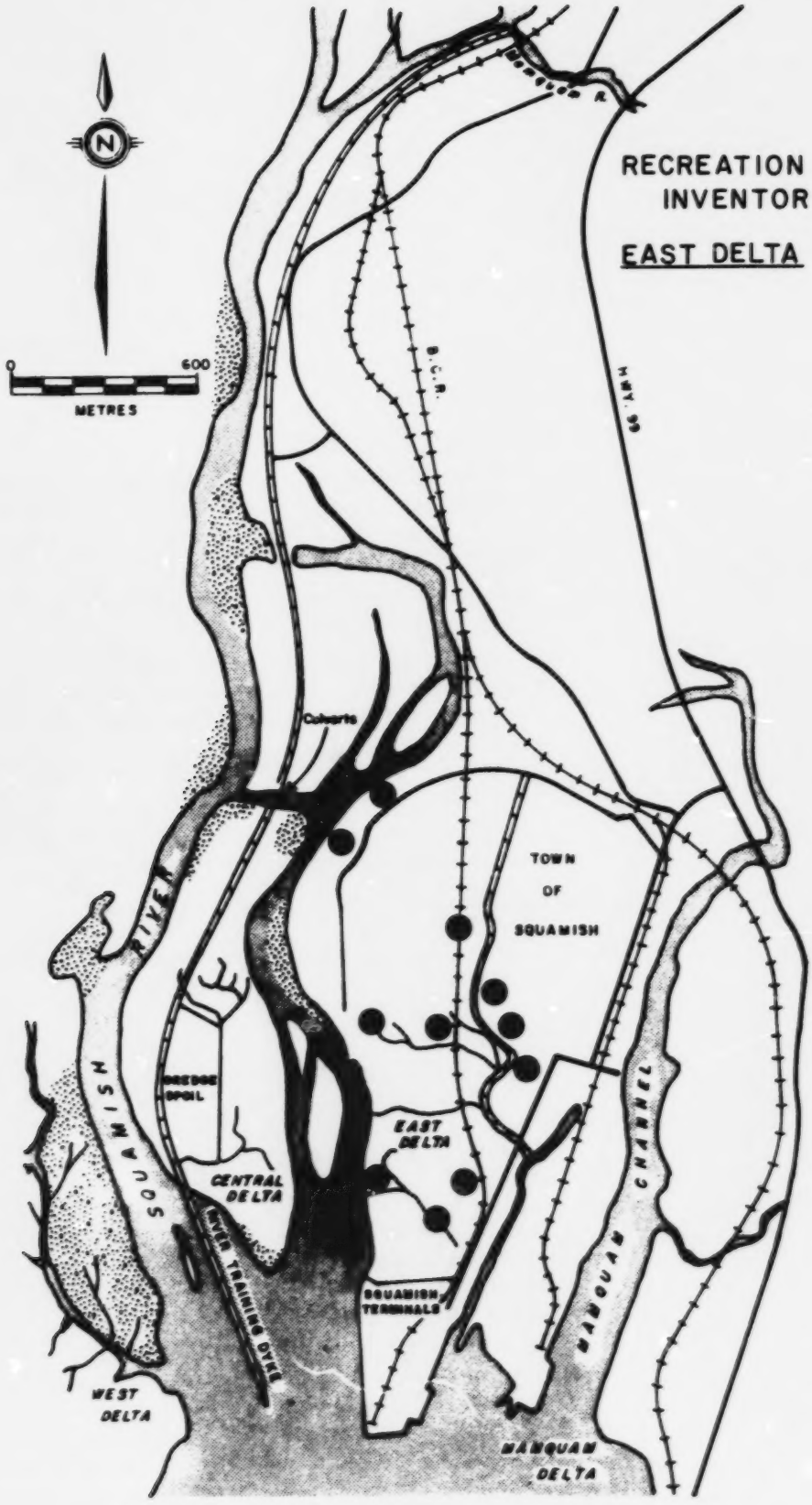
- primarily by permit, for waterfowl, south of culverts.

Angling

- primarily in river and central channel.

Access is via dyke road.

Due to the relatively easy foot and small boat access and the minimal development, this area appears to be one of the most widely attractive sites in the study area.



SQUAMISH ESTUARY MANAGEMENT PLAN

East Delta

Nature Observation

- birdwatching, flora and fauna, both in the estuary and the upland areas.

Hunting

- 137 metres west of B.C. Railroad tracks and north of Squamish terminals. Special permit area

Angling

- in central basin.

Camping

- informal camping has been reported adjacent to the central basin. Not heavily used.

Walking

- Bears, attracted by the dump, are a possible hazard, although the dump is now closed. Walking on dyke and railway fill is popular.

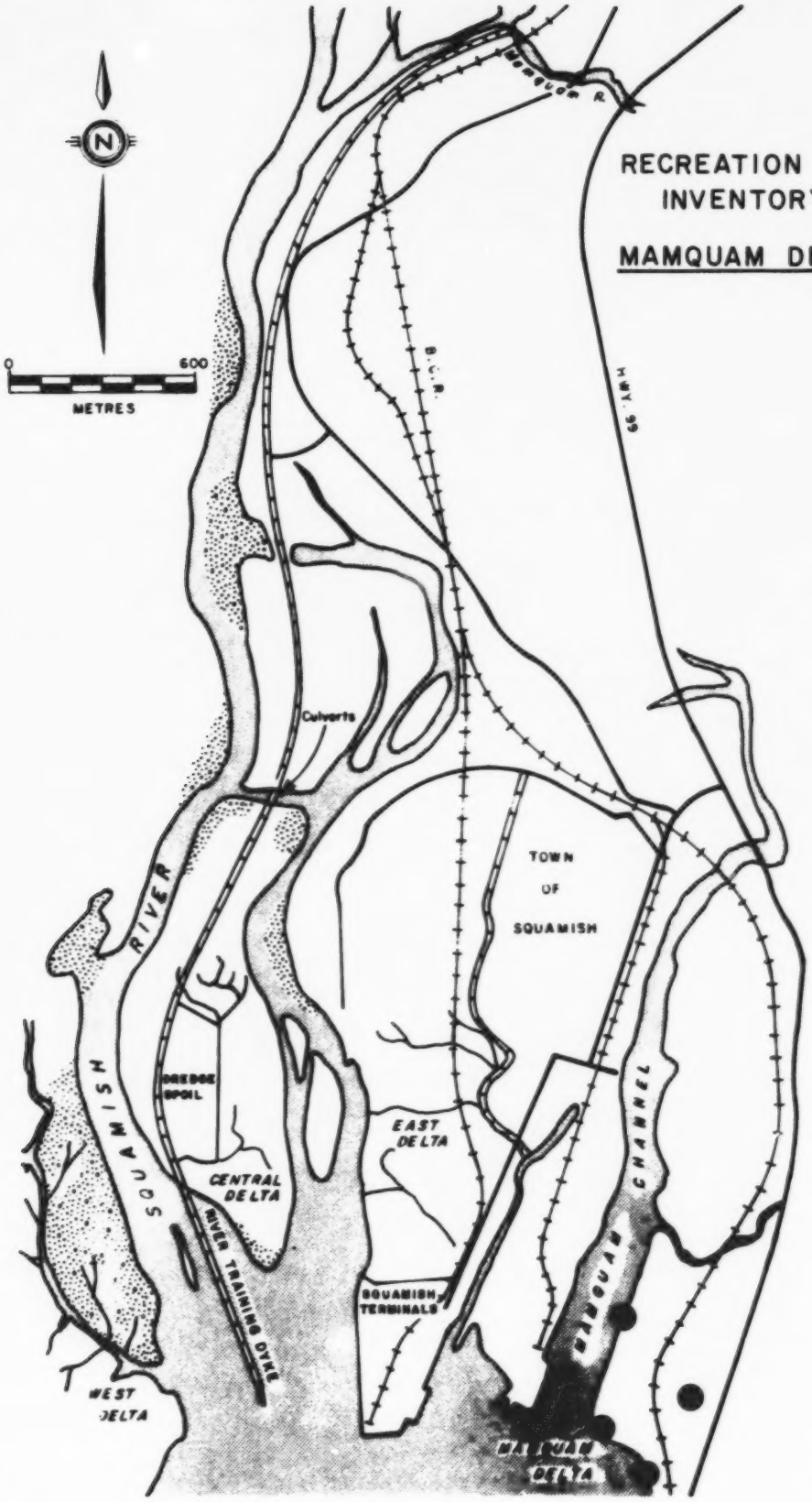
Boating

- shallow draft in center channel.

Access is by the old C.P.R. road from the town, past the city dump.

By shallow draft boat from Squamish.

By the road to Squamish terminals and along dykes.



SQUAMISH ESTUARY MANAGEMENT PLAN

Mamquam Channel

Angling

- some angling reported at various locations throughout the channel for migrating salmonids and other indigenous species.

Nature observation

- some opportunities exist in conjuction with fish and other marine life.

Industrial Interpretation

- opportunity exists at public access points to interpret industrial activities in the Channel (e.g. log dumping, boom boats, etc.) for Royal Hudson patrons.

Recreation Boat Moorage

- Yacht Club members on southern fingers; other public and fish boats on MOT fingers to the north of the wharf.
- heavy demand expected to soon exceed capacity of Yacht Club. MOT emphasis on commercial boating and not likely to expand here.

Recreational Boat Launch

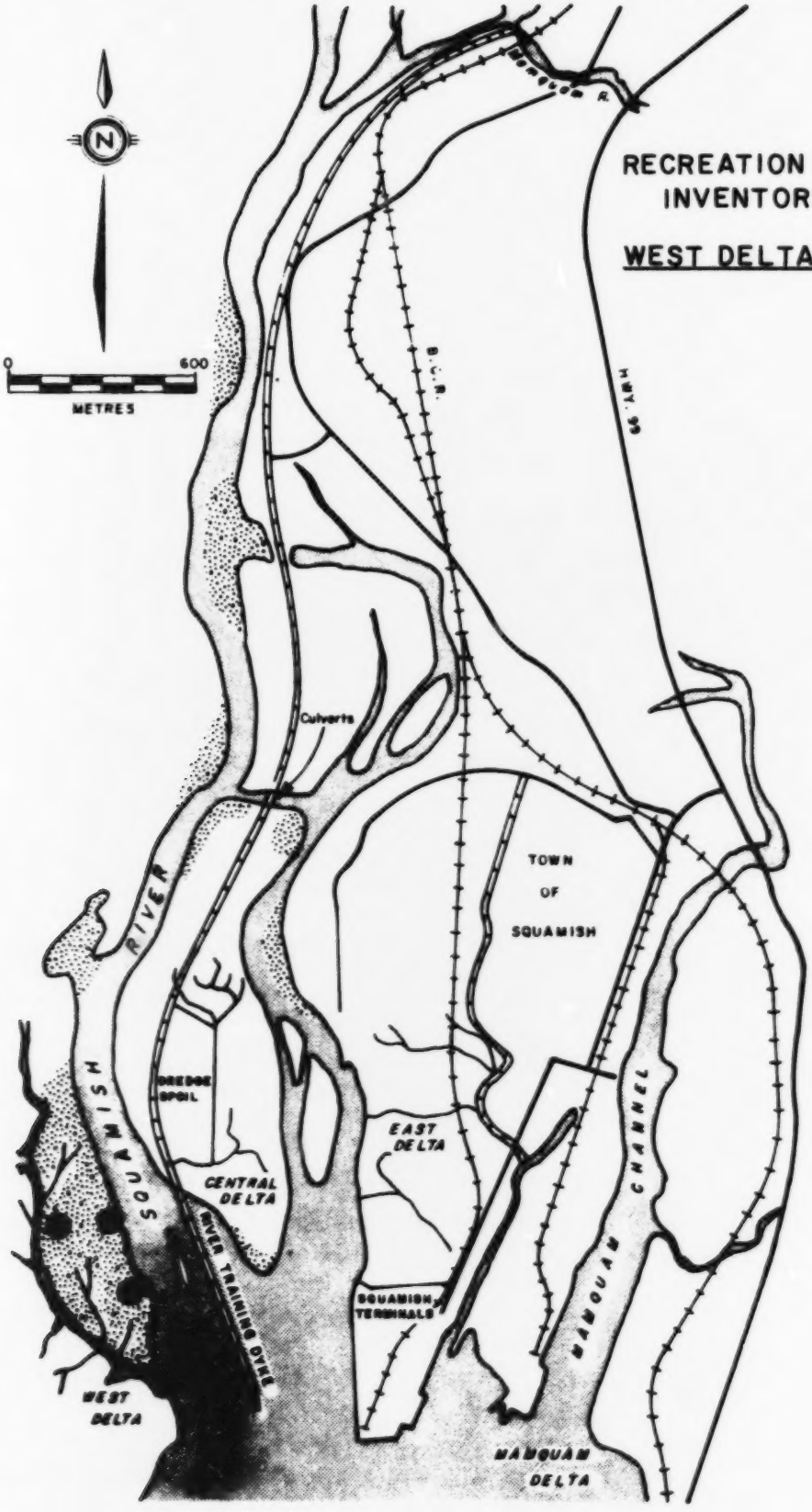
- built, maintained and operated by the Squamish Yacht Club, this is the only public boat ramp in the north end of Howe Sound.

Access draws some conflict (i.e. safety) with industrial traffic; parking space is reported to be inadequate.

Due to commercial and industrial development, public access is largely constrained. Waterlot lease boundaries are frequently ignored by lessees, adding to congestions.

Competing and often conflicting uses of the channel often pose a safety hazard.

Current conflicts include seaplanes, log booms, commercial boat traffic, corrosive airborne chemical emissions. Space is very limited and alternate sites are few.



SQUAMISH ESTUARY MANAGEMENT PLAN

West Delta

Hunting (Waterfowl)

- by special permit issued by the District of Squamish (October - January). Average 90% of the 60 permits in 1979 were for local residents.

Hunting (Other)

- some upland birds and deer hunting west of the delta.

Angling

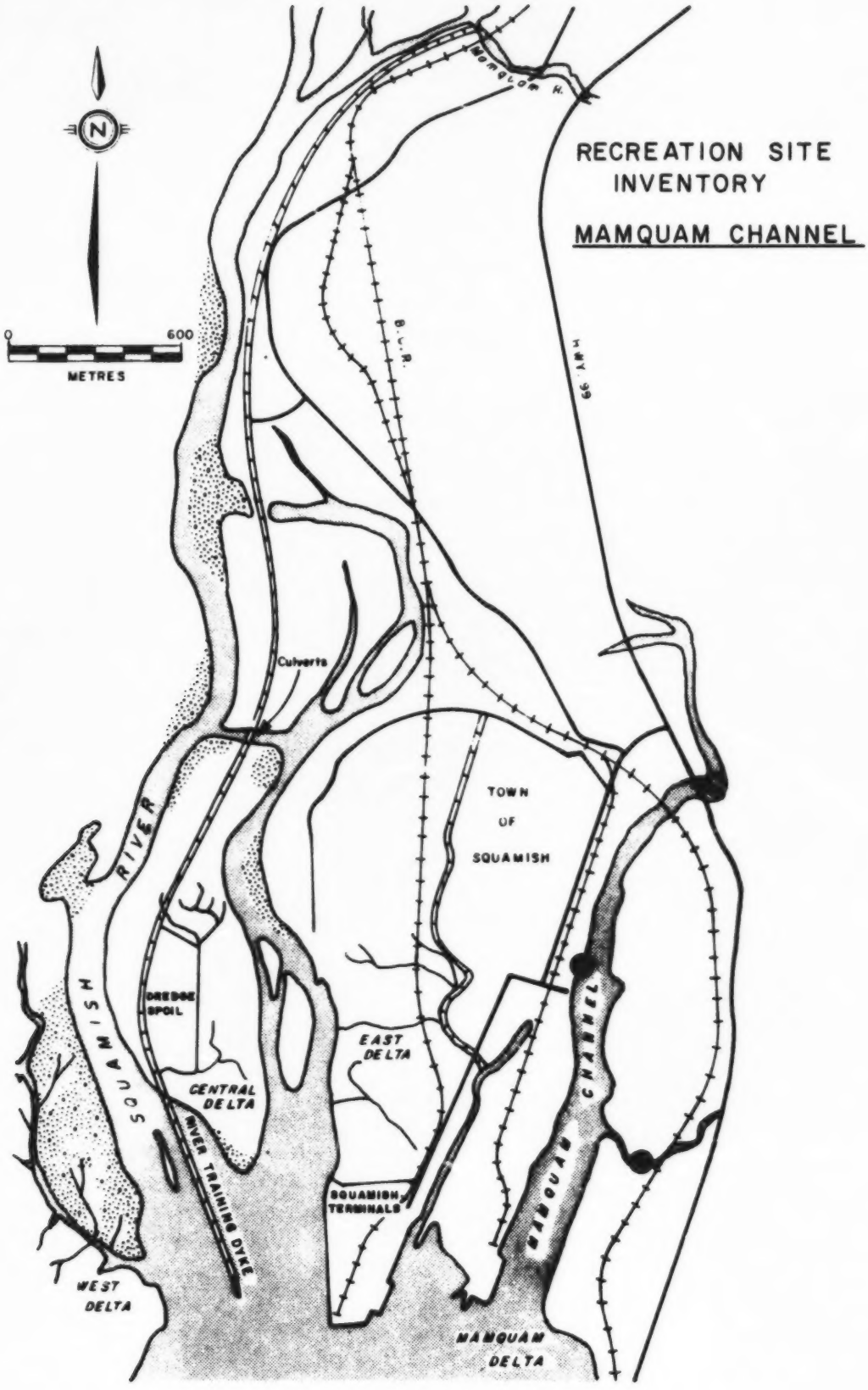
- for salmon and other species.

Nature observation

- birdlife, flora and fauna.

Boat access from the east shore of the river or from Squamish.

Generally shallow draft boats.



SQUAMISH ESTUARY MANAGEMENT PLAN

Mamquam Delta (Mouth of Mamquam Blind channel)

Nature Study

- some shore zone interpretation and birdwatching

Boating

- access and egress from berths and boat launch in the Mamquam Channel. Some in conjunction with angling.

Angling

- boat and shore angling successes have apparently declined significantly in this area in recent years.

Viewing

- a bluff viewpoint exists just east of the Delta.

Access is generally by boat or via Weldwood access near the Stawamus River.

Recreational activities are constrained due to existing industrial activities.

APPENDIX V

ARCHAEOLOGICAL SITES

No significant archaeological or heritage sites have been recorded in the study area. The apparent lack of evidence is not due to the area's minor role in the archaeological past, but rather, to the three active rivers that share the floodplain.

Archaeologists are sure that the estuary has played an important part in the lives of early Indians in this region. All trace simply appears to have been obliterated by the countless floods experienced here over the centuries.

APPENDIX VI

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